DOCUMENT RESUME

ED 263 089 SP 026 762

AUTHOR Duszynski, Timothy J.
TITLE A Collaborative Model for Continuing Learning in Computers for Professional Educators.
PUB DATE Jul 85
NOTE 21p.; Paper presented at the World Assembly of the International Council on Education for Teaching (32nd, Vancouver, British Columbia, Canada, July 22-26, 1985).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Computer Science Education; Cooperative Programs; Demonstration Programs; Higher Education; *Inservice Teacher Education; *School Business Relationship

ABSTRACT

This report presents a collaborative model for continuing education in computers for professional educators. The National Computer Training Institute, a private consortium founded in 1984, has as its goal the development and delivery of high quality training materials and activities for teachers, students, and community members. Eighty-six computer learning centers have been established to date. The implications of this collaborative model include: (1) serving as a model for other emerging fields of import to professional educators; (2) providing state-of-the-art instruction delivered to professional educators in ways that are cost-effective and convenient to the educator and the provider; and (3) defusing criticism in some sectors that schools of education cannot keep pace with the rising costs of instruction in emerging technologies--the model costs less than if similar instruction were delivered exclusively by the college. (JD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

H. Leavitt

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

A COLLABORATIVE MODEL FOR CONTINUING LEARNING IN COMPUTERS FOR PROFESSIONAL EDUCATORS

Timothy J. Duszynski, D.A.
Dean of Graduate and Continuing Studies
Marycrest College
Davenport, Iowa 52804
(319) 326-9581

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED263089

The proposed presentation will describe a national (U.S.) collaborative model for continuing learning in computers for professional educators and will postulate possible implications for further computer and information technology education for pre- and in-service professional educators in this country and abroad.

Planning and delivering quality education in computers for professional educators is a challenge being met in a unique collaboration among educational institutions and the private sector. The National Computer Training Institute (NCTI), a private consortium founded in 1984 by educators who believe that technology can contribute significantly to the improvement of teaching and learning in the schools, has as its goal to develop and deliver the highest quality training materials and activities for teachers, students, and community members. Its first project has been the establishment of 86 computer learning centers in the U.S. for delivering the highest quality computer education programs for educators. This unique collaborative effort has involved the following organizations to date:

- Cooperating elementary or secondary schools which serve as the 86 learning sites.
- IBM Corporation has loaned 17 personal computers to each site for the duration of the project.
- The Source, the world's largest private software-communications network owned by Control Data and Reader's Digest, has loaned state-of-the-art software and 24-hour telenet communications to each site.
- The actual education provided at each site is facilitated by two experienced teachers who have been trained by NCTI. This element of the collaboration invokes the concept of "teachers teaching other teachers."
- The sites are used by schoolchildren for their own computer learning when not in use by professional educators. This is about 75-80% of the time.
- Several local graduate institutions of professional education, including Marycrest College, have entered into agreements with NCTI to award graduate-level credit to interested educators who have completed the specified computer education. Marycrest College has long been recognized as a leader in collaborative in-service professional education in Iowa and surrounding areas and brings the unique element of awarding graduate credit toward its Master of Arts in Computer Science Education degree to completers of the NCTI course.

The several implications of this collaborative model include these: serving as a model for other private sector-school collaborations in technology or other emerging fields of import to professional educators; state-of-the-art instruction delivered to professional educators in ways that are cost-effective and convenient to the educator and provider; defusing criticism in some sectors that schools of education cannot keep pace with the rising costs of instruction in emerging technologies (eg. the model outline above costs less than if similar instruction were delivered exclusively by the college).

SP 026 762

A COLLABORATIVE MODEL FOR CONTINUING LEARNING IN COMPUTERS FOR PROFESSIONAL EDUCATORS

by

Timothy J. Duszynski, D.A.
Dean of Graduate and Continuing Studies

Marycrest College
Davenport, Iowa 52804
July 24, 1985

A COLLABORATIVE MODEL FOR CONTINUING LEARNING

IN

COMPUTERS FOR PROFESSIONAL EDUCATORS

COLLABORATION IN EDUCATION

A watchword of the eighties in education is "collaboration". Working agreements within parameters and responsibilities defined jointly by schools and other organizations such as business/industry, government, and other institutions of learning is on the increase and is expected to continue to be a significant force in further development, or revitalization, as appropriate, of American schools for the foreseeable future.[1] This trend of collaborative working agreements is reflected increasingly in the education literature. A recent comprehensive bibliography on interinstitutional cooperation and consortia that was commissioned by the Council for Interinstitutional Leadership lists 16 books, 119 book chapters, 235 journal articles, 85 doctoral dissertations, 63 research reports, 35 booklets, and 20 conference proceedings on the subject.[2] A review of publications such as The Chronicle of Higher Education and other professional journals reveals that increasing numbers of conferences, workshops, and seminars are devoted wholly or in part to the topic of educational collaboration and that many professional gatherings include sessions on collaborative efforts.[3] Individual institutions with significant involvement in research/development and training such as the University of Minnesota have recently developed or updated guidelines or policies for interacting with business and industry that address the various aspects of collaboration between the university and

an outside organization or consortium.[4] These collaborative agreements need not be limited to research/development and training but can include a variety of creative ventures such as the real estate investment ventures[5] and joint campus/industry investment collaborations undertaken in recent months by Duke University and outside private sector investors.[6]

One area within education that has had a long tradition of collaboration is teacher training programs that have historically depended on collaborative agreements between colleges of education and local school districts. In recent times, teacher training programs in high student demand-low teacher availability disciplines such as mathematics, the natural sciences, and computer science have sought to increase the number of new teachers or retrained teachers from other disciplines by extending collaborations to include business and industry.[7] Training teachers in the rapidly-developing high technology fields and in computer science in particular has resulted in many collaborative efforts to train qualified classroom teachers quickly and efficiently. Projects such as the Math/Science/Technology Education Project in Massachusetts involve a number of collaborators including state agencies, education colleges, local school districts, and the private business sector. This successful pre-service effort has relied heavily on private high-tech industry to assist in the selection and training of secondary teachers in these science and high-technology disciplines.[8] Other institutions such as the Institute of Computer Technology in Sunnyvale, California are establishing courses to train teachers to teach computer studies.[9] And colleges like Clark College in Dubuque, Iowa[10] and Marycrest College in Davenport, Iowa[11] have recently started formal graduate-level (master's degree) programs in computer science education for practicing K-12 teachers.

Although not direct collaborative ventures among colleges, business/industry and local school districts, these efforts represent an attempt to provide quality training in teaching computer science within the context of professional education; and in the case of at least one institution, represents collaboration with corporate or foundation support for some of the start-up costs related to hardware and software acquisition.[12]

NATIONAL COMPUTER TRAINING INSTITUTE (NCTI) COLLABORATIVE MODEL

In 1984 a collaboration involving the private sector (business and industry), local school districts, and higher education was begun with the goal of training classroom teachers to teach computer science in grades K-12. Like the collaborative examples listed previously, this new collaboration follows the general collaborative principles of shared parameters and responsibilities defined by all participants in the collaboration and is an example of the continuation of the trend of increased integration of the public and private, and educational, sectors in the process of delivering quality instruction. This new collaboration is called the National Computer Training Institute (NCTI). Founded in 1984 by educators who believe that technology can contribute significantly to the improvement of teaching and learning in schools, NCTI has as its goal the development and delivery of the highest quality training materials and activities for teachers, students, and community members.[13]

Nationwide collaboration involves NCTI (based in Fremont, California), some 86 local school districts, and over 40 colleges and universities. NCTI identifies, with the assistance of an extensive nationwide network of contacts in the computer field (private and public, and education sectors) prospective K-12 teachers to be trained as instructors who will in turn teach other K-12 teachers and educators in the use of computers in their professional work.

In addition to identifying and training prospective computer science trainers, NCTI has established to date (Spring 1985) eighty-six sites

throughout the United States. The sites are local schools (K-12) which have agreed to house the teacher-training facilities. Each site is equipped with each of the following computer hardware: 17 IBM PC jrs, 128K RAM; IBM RGB color monitor with audio; IBM graphics printer ("Epson MX-80") and printer stand; and the following software: writing assistant; filing assistant; reporting assistant; graphing assistant; multiplan; LOGO; BASIC; professional pixel; typing tutor; IBM LOGO'd software (fast-track); turtle power; adventures in math; typing tutor; bumble games; bumble plot; piggle's butterfly; math games; monster math; personal communications manager; word proof; arithmetic games; set 1 and set 2; private tutor; DOS. In addition to this startup software, multiple copies and single copies of application software are regularly added to the software supply. Fifteen of the hardware and software combinations are used by up to thirty teachers per class who are undergoing the training. The other two combinations are reserved for each of the two instructors who team-teach each class. All hardware and some software has been loaned indefinitely to NCTI free of charge by IBM. The remaining software has been loaned likewise indefinitely (for the life of the project) by The Source, the world's largest software-data bank (privately-owned). In addition, through The Source, telecommunications (modem hookup) connects each of the 86 sites so that instantaneous communication, networking, curriculum review, and information and software exchanges between and among the 172 instructors at the 86 sites can be facilitated.

The classes are held typically evenings and weekends when the teachers (themselves regular classroom teachers) are available to participate in the course. Actual training consumes about 15-20% of site use. During the

remaining 80-85% of the site time, the hardware and software are used as a computer classroom (usually during school time-daytime hours) by the students at the site (the sponsoring K-12 school).

A final party in this collaboration is a local senior institution that agrees to validate the course taught ("Using Computers Personally and Professionally: A realistic Course for Educators"; a course syllabus is attached). Typically this is done as part of the curricular process of the institution, with NCTI instructors and course content being approved by the institution as a valid course carrying typically three semester hours of credit from the senior institution. In summary, then, the NCTI collaboration for providing computer training to teachers involves the following principals:

- NCTI, California based provider and overseer of the collaboration.
- IBM, provider (on loan) of hardware and software.
- The Source, provider of software and telecommunications access to networking among trainees and between trainers and NCTI.
- The University of California Extension as provider, through NCTI, of computer training for prospective trainers.
- Classroom teachers identified as trainers of other teachers.
- Classroom teachers receiving the computer training.
- Local K-12 schools serving as training sites.
- K-12 students using the site hardware and software during the school day.
- Local senior institutions approving the NCTI course and the local trainers and awarding credit to teachers who complete the course.

REGIONAL EXAMPLE OF THIS COLLABORATION

The State of Iowa was selected by NCTI as one of the areas in need of computer training for teachers. Two sites within the State were identified -- North Scott School District in Eldridge near the east-central border of Iowa-Illinois and contiguous to the Quad Cities Iowa-Illinois population center (second largest population center in the state); and Lincoln High School in Des Moines, in central Iowa (state capital and largest population center). Officials from each school district signed agreements with NCTI to serve as training sites. NCTI in collaboration with IBM and The Source equipped each site with appropriate hardware and software. Two instructors from each participating school were selected as trainees and received extensive computer training at the University of California Extension. NCTI and Marycrest College of Davenport, Iowa entered into an agreement whereby teachers enrolled in the NCTI computer course could elect to receive three semester hours of graduate credit upon successful completion of the course. In addition, Marycrest College brought to this collaboration two unique elements: (1) the NCTI course would be equivalent to the introductory course in computers for educators in its graduate level Computer Science in Education program; and (2) Marycrest's 45-year tradition of innovation in professional and career education, including delivering pre- and in-service professional education and continuing professional and graduate studies in education to teachers at sites throughout Iowa. NCTI and Marycrest agreed to publicize this collaboration -- NCTI through its special mailings and other advertisements as part of its marketing strategy, and Marycrest through its listing the NCTI courses and sites in its regular marketing efforts such as class schedules and course timetables.

Cost of the class is $195.00 with an additional $60.00 accreditation fee assigned to students electing three semester hours of graduate credit. The $195.00 is payable to NCTI and covers cost of course development, instruction, instructor (trainer) training, and marketing and supervision by NCTI. The $60.00 accreditation fee covers Marycrest registration and handling fees, marketing costs, administrative costs associated with approval of trainers and course evaluations, and course approval. It is noted that the course meets the regular Marycrest College personnel and graduate course approvals through regularly-established college procedures, which include the following:

Personnel: Vita and adjunct faculty application of site trainers are filed with the Dean of Graduate and Continuing Studies, who recommends on these to the graduate faculty of Computer Science and Education, through the appropriate Department Heads; and to the Vice President for Academic Affairs and Dean of the College who makes final personnel decisions regarding faculty.

Course Approval: Following the protocol of the personnel recommendations, the Dean of Graduate and Continuing Studies recommends on the course (per syllabus and materials) to the appropriate graduate faculties (through the Department Heads of the Computer Science and Education Departments) and through them to the Vice President for Academic Affairs and Dean of the College.

Course Evaluation: Regular graduate course evaluation forms developed by Marycrest College are used for evaluating the course. The completed forms are filed with the Dean of Graduate and Continuing Studies who reviews them

and shares them with appropriate Department Heads (Education and Computer Science Departments). Also, site visits of classes are conducted every term (10-week term) by the Dean of Graduate and Continuing Studies or his designee, or the Computer Science and/or Education Department Heads. At these site visits, trainers are interviewed and class observations are made.

IMPLICATIONS OF THIS COLLABORATION

The implications of this collaboration are several and include the following:

- The NCTI collaboration could serve as a model for school-business/industry-college of education collaboration in other environments, for example, outside of the United States where there is an identified need for teaching computers and computer literacy to K-12 students and a concommitant need for providing qualified K-12 computer teachers.

- This model could serve as an example of broad collaboration, for example, in providing a method for delivering quality pre- and in-service training to teachers in emerging technological fields utilizing state-of-the-art equipment.

- The private sector will have to continue to support actively and generously the efforts of schools to provide state-of-the-art high-technology training and education on the single basis of the cost factor. Costs of state-of-the-art technology and qualified individuals to serve as trainers are becoming increasingly prohibitive to schools who provide directly or indirectly education and training for the entire work force of a region, locale, or nation. The private sector (or employer, public or private) needs to recognize more acutely its responsibilities to itself and to society by providing assistance to schools, especially in these emerging technologies.

- Employers will become more aggressive in their support of education through collaborative models like NCTI as they experience the positive

effects of their efforts (such as better educated and trained students entering the workforce who contribute to the development of the social order). Many of these effects, admittedly, are difficult to quantify. However, the intrinsic positive effects of collaboration, including communication and working together positively and productively, should not be overlooked as models for improving the quality of life and interaction within the social fabric.

- Similar collaboration worldwide would result in the establishment of networks of colleagues and learners across national boundaries, which would result in future possibilities for increased understanding between and among peoples of different backgrounds, cultures, and nationalities.

- Worldwide collaboration would foster the development of under-developed nations by bringing sophisticated information and knowledge bases to the learners (schoolchildren, their teachers and parents) in these countries.

- Higher education will move further from increasingly outmoded traditions of meeting learners' needs in standard, inflexible ways to becoming flexible in meeting learners' needs and interests in formats and at sites that are accessible and reasonable to learners. One example of this implication is an institution validating courses for credit that have been developed by other institutions or organizations and recognizing the credentials of teachers who have been trained in other than traditional ways.

The success of the NCTI collaboration and the model for other

collaborations that it represents rests ultimately with how well it fulfills its objectives based on its four assumptions, listed below:

1. There are many appropriate uses of computers in schools, but no one should be emphasized at the expense of the others. The future use of computers will be as a tool for personal record keeping, problem solving, personal development, and communication. It is for this future technological use that students should be prepared.

2. Local school site educators are the key to successful use of technology in the classroom. There has been significant growth in educational computer use in the past few years; however, future development will depend on the majority of staff members in the school becoming computer-user-educators.

3. In order for teachers to become involved in computer education, they must be made comfortable with the technology and shown that it can contribute to them personally and professionally.

4. Educators learn best from colleagues. Training is most effective if the trainers have the credibility that comes from being local practictioners who are connected to a national network.

To these assumptions are added two others of my own that, taken with those of NCTI, would serve as guidelines for other collaborative efforts involving education:

5. Private business/industry is best served when it takes a direct

interest in the welfare of the populace who both serve it and are served by it. A direct investment in local education by business/industry is the best way to serve both population and industry.

6. Education is best served when educators themselves continually challenge their modes of thinking and ways of delivering instruction and educational service. Collaboration among a variety of constituencies provides a natural means for the ongoing challenge of education for self-reflection and self-improvement to meet real needs of real learners.

As a final note, the age of collaboration is here and will likely remain for a while. Hopefully, learners of all kinds --- educators, teachers, businessmen and -women, government leaders, captains of industry, children and adults, in short, all of us -- will recognize our common and emerging needs to work together positively and productively for the growth of each individual and the development of the whole of us.

Notes

1
Marvin Cetron, Schools for the Future: How American Business and Education Can Cooperate to Save Our Schools (New York : McGraw-Hill Book Company, 1985).

2
Fritz H. Grupe, Interinstitutional Cooperation, Consortia, and Regionalization: Comprehensive Bibliography #3 with Citations (Washington, D. C.: Council for Interinstitutional Leadership, 1983).

3
For example, the July 10, 1985 issue of The Chronicle of Higher Education lists no fewer than six upcoming conferences whose topics deal wholly or in part with the topic of collaboration in education.

4
University of Minnesota Office of Research and Technology Transfer Administration, Guidelines on Interaction with Industry (St. Paul, Minnesota : University of Minnesota, 1985).

5
Eugene J. McDonald, "Institutional Strategies: Duke University-Licensing and Real Estate Joint Ventures," Educational Record, Winter 1984, pp. 50-53.

6
Eugene J. McDonald, "Campus/Industry Joint Ventures," Business Officer, February 1985, pp. 20-22.

7
Francie Gilman, "Cooperative Ventures in Teacher Education," Journal of Teacher Education, November-December 1984, pp. 24-26.

8
Richard Clark, "Recruiting Talent into Public School Teaching: An Analysis of One Successful Pilot Program," Journal of Teacher Education, November-December 1984, pp. 2-4.

9
Roy Agee, "Are We Really Training Computer Teachers?" Technological Horizons in Education Journal, March 1985, p. 97.

10
Clark College 83-85 Catalogue, pp. 161-178.

11
Marycrest College 84-85 Catalogue, pp. 102-119.

12
Marycrest College was the recipient of a donation of a local computer company and thus was able to meet some hardware and software needs in the

start-up phases of its Computer Science/Education (COSE) program.

13 Details about NCTI, including the four assumptions at the conclusion of this paper, are excerpted from the NCTI Course Proposal--Using Computers Personally and Professionally: A Realistic Course for Educators, 1984.

USING COMPUTERS PERSONALLY AND PROFESSIONALLY: A REALISTIC COURSE FOR EDUCATORS

COURSE SYLLABUS

I. Course Description

A 3 semester credit course exploring the instructional and professional possibilities of microcomputers. This course explores a comprehensive set of applications including: word processing, data management, telecommunications, Logo, BASIC, electronic spreadsheets, and authoring languages. Emphasis will be on instructional, personal and professional uses of computers by educators.

Through ongoing hands-on use, participants will come to an operational understanding of a word processing and a data management program. Each participant will have the opportunity to choose an additional application to explore in depth.

In addition to these applications participants will be introduced to important issues in computer education, including software copyright protection, equity of access, appropriate uses of computers in schools, and how each application fits into the school curriculum. Software evaluation and classroom use of instructional software will be discussed in depth.

Instruction includes extensive hands-on use of IBM PCjrs, each with new keyboard, 256 K random access memory, RGB color monitor, and dot matrix printer. Enrollment is limited to ensure that there will be no more than two participants per computer.

Participants may elect to receive 3 graduate or extension credits for completing the course requirements. Proposed course requirements for credit students are:

1. Attendance.

2. Reviews of 6 articles from 3 different educational computing journals. These reviews will be written with the word processor.

3. Project: The participant will develop one application of the computer for use either in the classroom or for personal-professional tasks. This project will be turned in on disk or paper medium.

4. Specific assignments relating to course topics as deemed appropriate including creating a data base for software evaluations.

II. Software to be used in the course:

IBM Assistant Series (also published under the name of PFS:File, Report, Graph, and Write);
Multiplan
Logo
BASIC
Typing Instructor and Professor Pixel from Individual Software, Inc.
Instructional software from Learning Well, Inc.
Instructional software carrying the IBM logo
Turbo Pascal
An authoring language to be announced
Graphics and music software to be announced
The Source telecommunications network
Additional instructional software to be announced

III. Outline of Topics

Each of the following sessions is estimated to be a 2 1/2 to 3 hour module. Each will contain relevant readings, discussion, demonstration, and hands-on activities. Incorporated into each session will be instruction on the IBM disk operating system, readings in computer education, and discussion of computer education issues.

1. Introduction to Computers
Vocabulary; components of the student work station; overview of computers in education; using educational software; exploring the IBM PCjr.

2. Word Processing
Introduction to the IBM Writing Assistant. Participants will create, store, and print documents.

3. Using Word Processing in Schools
Discussion and demonstration of techniques for helping students write better using word processing. More practice with word processing.

4. Software Exploration; Introduction To an Author Language
Particpants will be introduced to the types of instructional software. Discussion of the issue of software piracy. Lessons created with several authoring languages will be demonstrated.

5. Software Evaluation; Using an Authoring Language
Becoming a critic of educational software. Discussion of role of computers in special education. Participants will create a short lesson using a simple authoring language.

6. Data Management

Participants will be introduced, through demonstration and guided hands-on, to the IBM Filing Assistant Series. Participants will update an existing file and print a simple report.

7. Data Management- Developing a Professional Application; Further Exploration of Classroom Software

Participants will develop a software evaluation form using IBM Filing Assistant, and will store review information for three instructional software programs.

8. Data Management- Developing a Classroom Application; Further Exploration of Software

Participants will explore in depth the word processing, data management and/or instructional software made available in the class.

9. Graphics and Music; Curriculum Issues

Demonstration and hands-on use of graphics, art and music programs. Discussion of some key issues concerning computers in the schools.

10. Logo

Introduction to the nature and uses of the language

11. BASIC

Introduction to the nature and uses of the language

12. Electronic Spreadsheets; Curriculum Issues

Introduction to Multiplan, its business, personal and educational applications. Discussion of some additional key issues concerning computers in schools.

13. Computer Simulations; Ethical and Social Issues in Computer Education

Demonstration of educational simulations. Discussion of ethical and social considerations in computer use.

14. Telecommunications

Demonstration of the services offered by The Source, including electronic mail, teleconferencing, searching a large data-base such as the file of UPI news stories.

15. Instructional and Professional Applications

Participants report on their course projects.